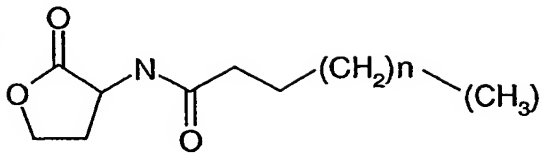
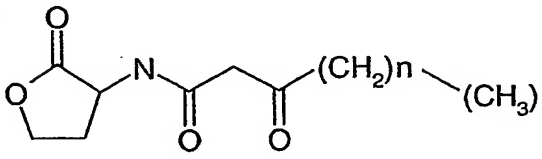
Table 1

Organism	Regulatory proteins	Signal molecule	Phenotype
Aeromonas hydrophila	AhyI/AhyR	BHL, HHL	serine protease, metalloprotease
Aeromonas salmonicida	AsaI/AsaR	BHL, HHL	?
Agrobacterium tumefaciens	TraI/TraR	HHL, OOHL	conjugation
Burkholderia cepacia	CepI/CepR	OHL	ornibactin, siderophores, exoprotease
Chromobacteriwn violaceum	CviI/CviR	HHL	antibiotics, violacein, exoenzymes, cyanide
Erwinia carotovora	CarI/CarR ExpI/ExpR	OHHL +?	carbapenem antibiotic exoenzymes
Erwinia chrysanthemi	ExpI/ExpR	OHHL, HHL	pectate lyase
Escherichia coli	?/SdiR LuxS/?	? AI-2	cell division ?
Pantoea stewartii	EsaI/EsaR	OHHL	Exopolysaccharide
Pseudomonas aeruginosa	LasI/LasR RhlI/RhlR	OdDHL, OHHL, OOHL BHL, HHL	Virulence factors inc: alkaline protease, elastase exotoxin A Chitinase, pyocyanin, rhamnolipid
Pseudomonas aureofaciens	PhzI/PhzR	BHL, HHL	Phenazine antibiotic
Pseudomonas fluorescens	PhzI/PhzR	OHL, HHHL, HOHL, HDHL	Phenazine antibiotic
Ralstonia solanacearum	SolI/SolR	HHL, OHL	? (aidA)
Rhizobium leguminosarum	RhiI/RhiR	HHL, OHL	Nodulation
Rhodobacter sphaeroides	CerI/CerR	?	Community escape EPS expressiom
Serratia liquifaciens	SwrI/?	BHL, HHL	Swarming, phospholipase
Vibrio anguillarum	VanI/VanR	ODHL	?
Vibrio fischeri	LuxI/LuxR AinS/AinR	OHHL, HHL OHL	Bioluminescence
Vibrio harveyi	LuxI/LuxR LuxPQ/LuxS	HBHL AI-2	bioluminescemce
Xenorhabdus nematophilus	?	HBHL	Virulence factors
Yersinia enterocolitica	YenI.YenR	HHL, OHHL	?
Yersinia pestis	YpeI/YeR	HHL, OHHL	Pathogenicity
Yersinia pseudotuberculosis	YpsI/YpsR YtbI/YtbR	HHL, OHHL OHL	Flagella production ?
Bascillus anthracis	?	AI-2	Virulence factors

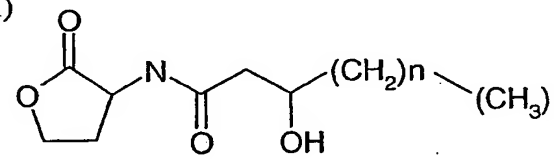
Figure 1a.

i) 

Acyl-homoserine lactone, e.g.
BHL (n=0), dDHL (n=8), tDHL (n=10)

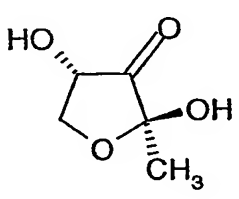
ii) 

3-oxo-homoserine lactone, e.g.
OHHL (n=2), OdDHL (n=8)

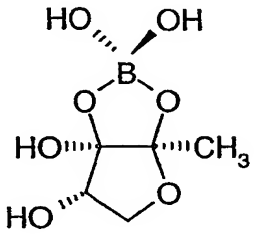
iii) 

3-hydroxy-homoserine lactone, e.g.
HBHL (n=0)

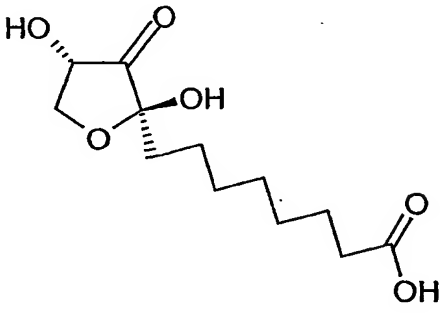
Figure 1b.

i) 

Pro AI-2

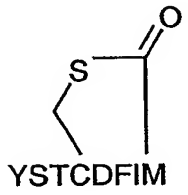
ii) 

Auto Inducer-2 (AI-2)

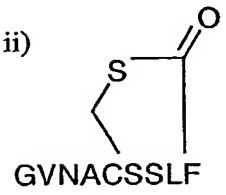
iii) 

Pro-AI-2-reactive hapten

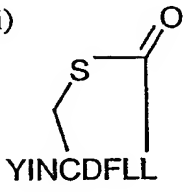
Figure 1c.

i) 

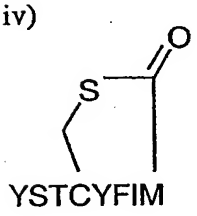
Agr D1 Thiolactone

ii) 

Agr D2 Thiolactone

iii) 

Agr D3 Thiolactone

iv) 

Agr D4 Thiolactone

Table 2.

scAb	dDHL-COOH	tDHL	OHHL	dDHL-BSA	Paraquat
G3G2	11 μM	21 μM	17 mM	0.28 μM	N/D
G3B12	4 μM	5 μM	2 mM	0.32 μM	N/D

N/D indicates that no IC_{50} value could be determined.

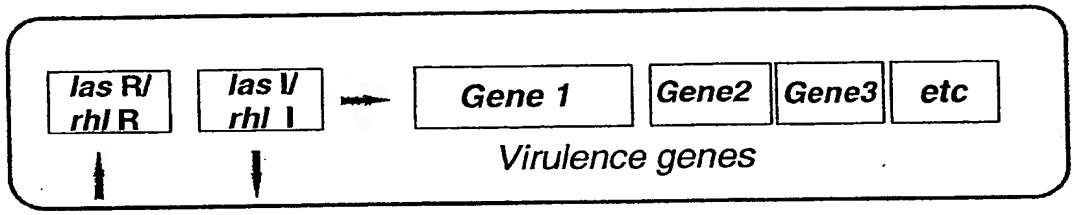
Table 3.

scAb	ka (mol l^{-1} s^{-1})	kd (s^{-1})	KA (mol/l)	KD (nM)
G3G2	4.19×10^4	1.43×10^{-3}	2.93×10^7	34.1
G3B12	3.93×10^4	1.56×10^{-3}	2.52×10^7	39.7

Table 4.

scAb	BHL	dDHL	tDHL	OHHL	Paraquat
G3B12	17 mM	1.4 mM	4.5 mM	10 mM	N/D
L1-A7 (G3B12)	1.25 mM (× 13.6)	40μM (× 35)	-	-	N/D
L1-B7 (G3B12)	-	130 μM (× 10.8)	-	-	N/D
L1-C11 (G3B12)	-	200 μM (× 7)	-	-	N/D
G12 (G3B12)	3 mM (× 5.7)	-	0.6 mM (× 7.5)	5 mM (× 2)	N/D

Figure 2.

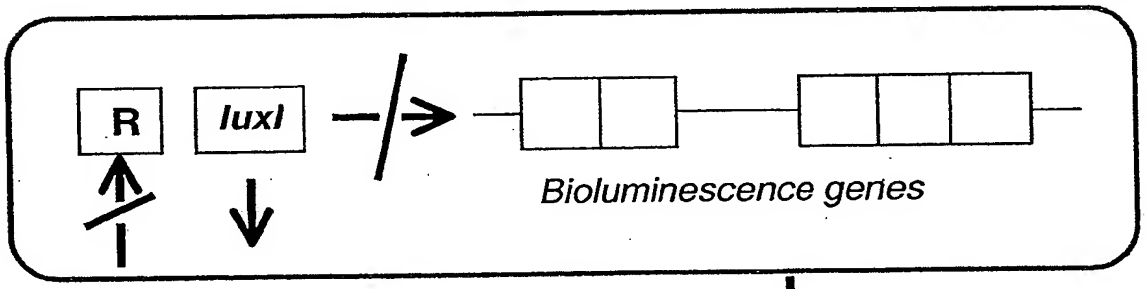


regulation

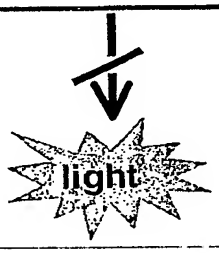
las I/ rhl I — Produce long chain (*las* I) and short chain (*rhl* I) HSLs

las R/ rhl R — Respond to long chain (*las* R) and short chain (*rhl* R) HSLs

Figure 3.



Anti-HSL antibodies stop gene expression by preventing HSL from binding to receptors



R *P. aeruginosa* (*lasR*)

Figure 4.

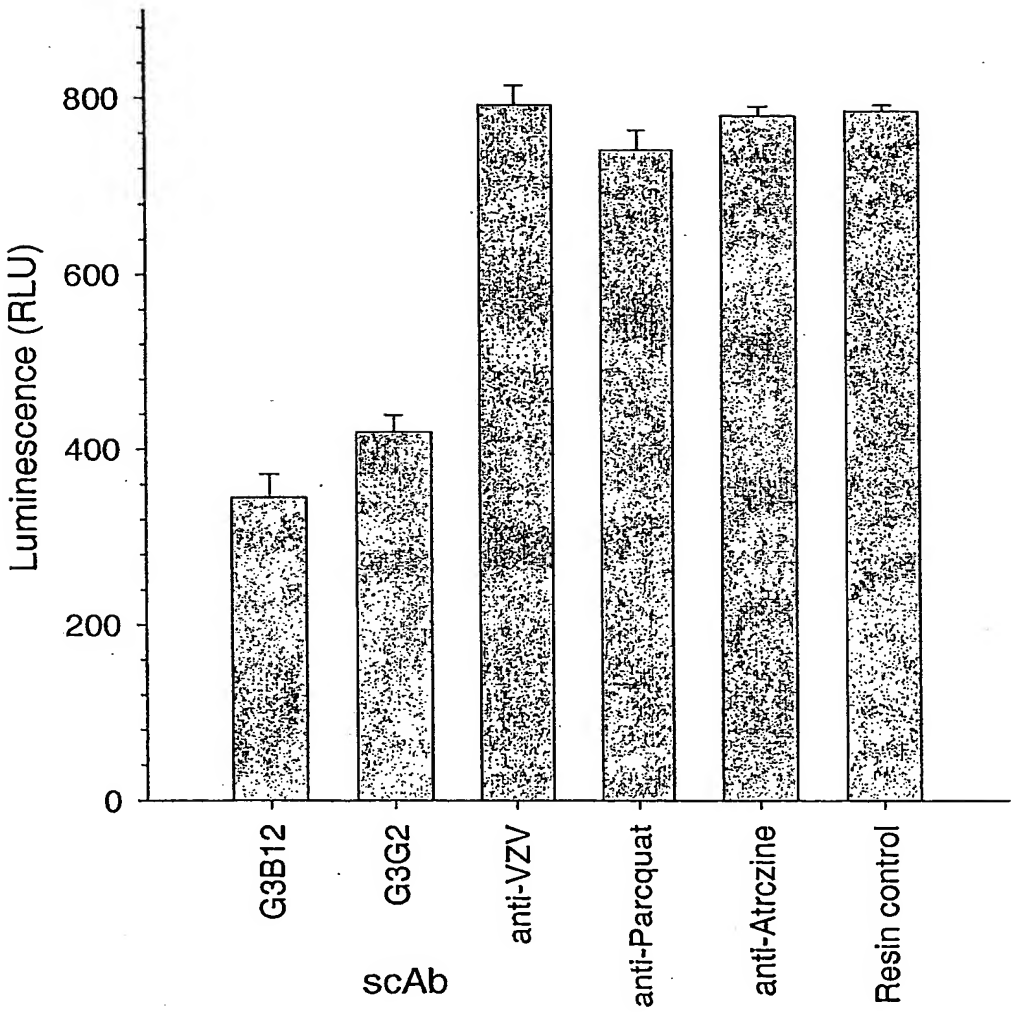

Luminescence (RLU)
0
200
400
600
800
G3B12
G3G2
anti-VZV
anti-Parcquat
anti-Atrczine
Resin control
scAb

Figure 5.

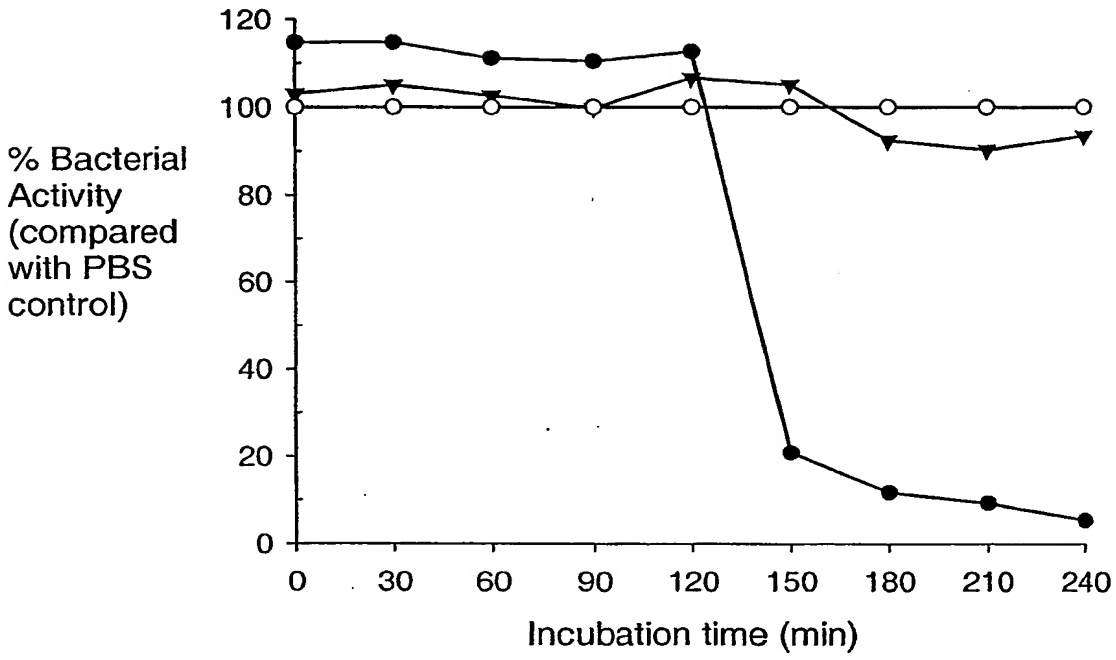

% Bacterial Activity (compared with PBS control)
120
100
80
60
40
20
0
0
30
60
90
120
150
180
210
240
Incubation time (min)

Figure 6.

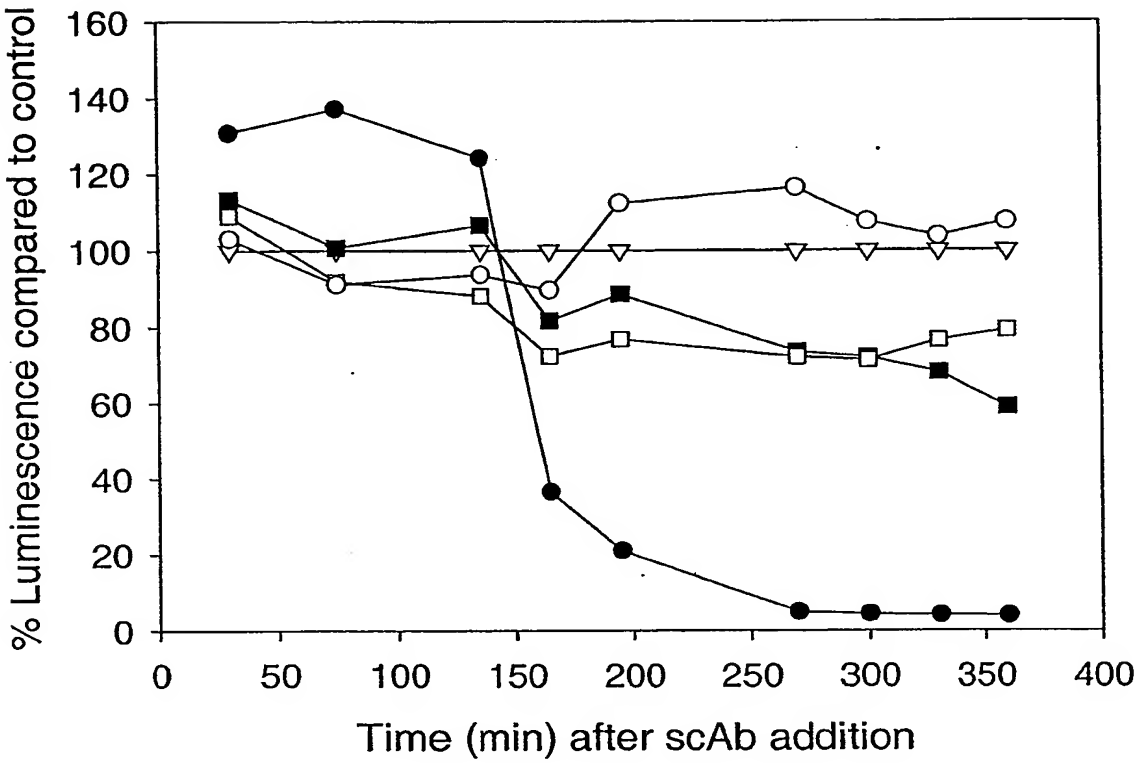

% Luminescence compared to control
160
140
120
100
80
60
40
20
0
0
50
100
150
200
250
300
350
400
Time (min) after scAb addition

Figure 7.

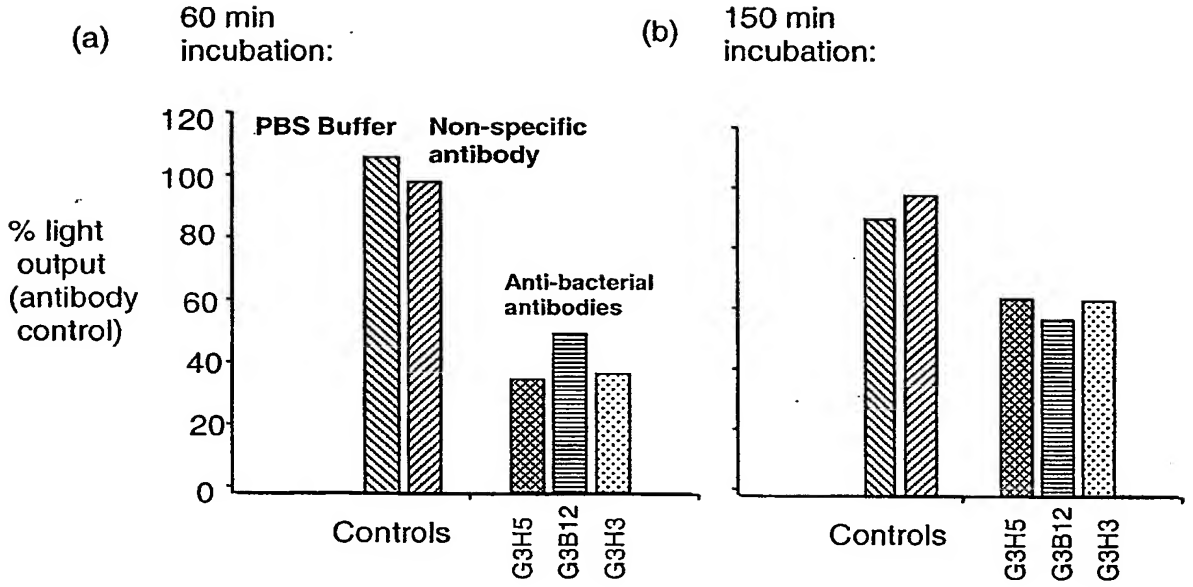

(a)
60 min incubation:
(b)
150 min incubation:
% light output (antibody control)
120
100
80
60
40
20
0
PBS Buffer
Non-specific antibody
Anti-bacterial antibodies
Controls
G3H5
G3B12
G3H3
Controls
G3H5
G3B12
G3H3

Figure 8.

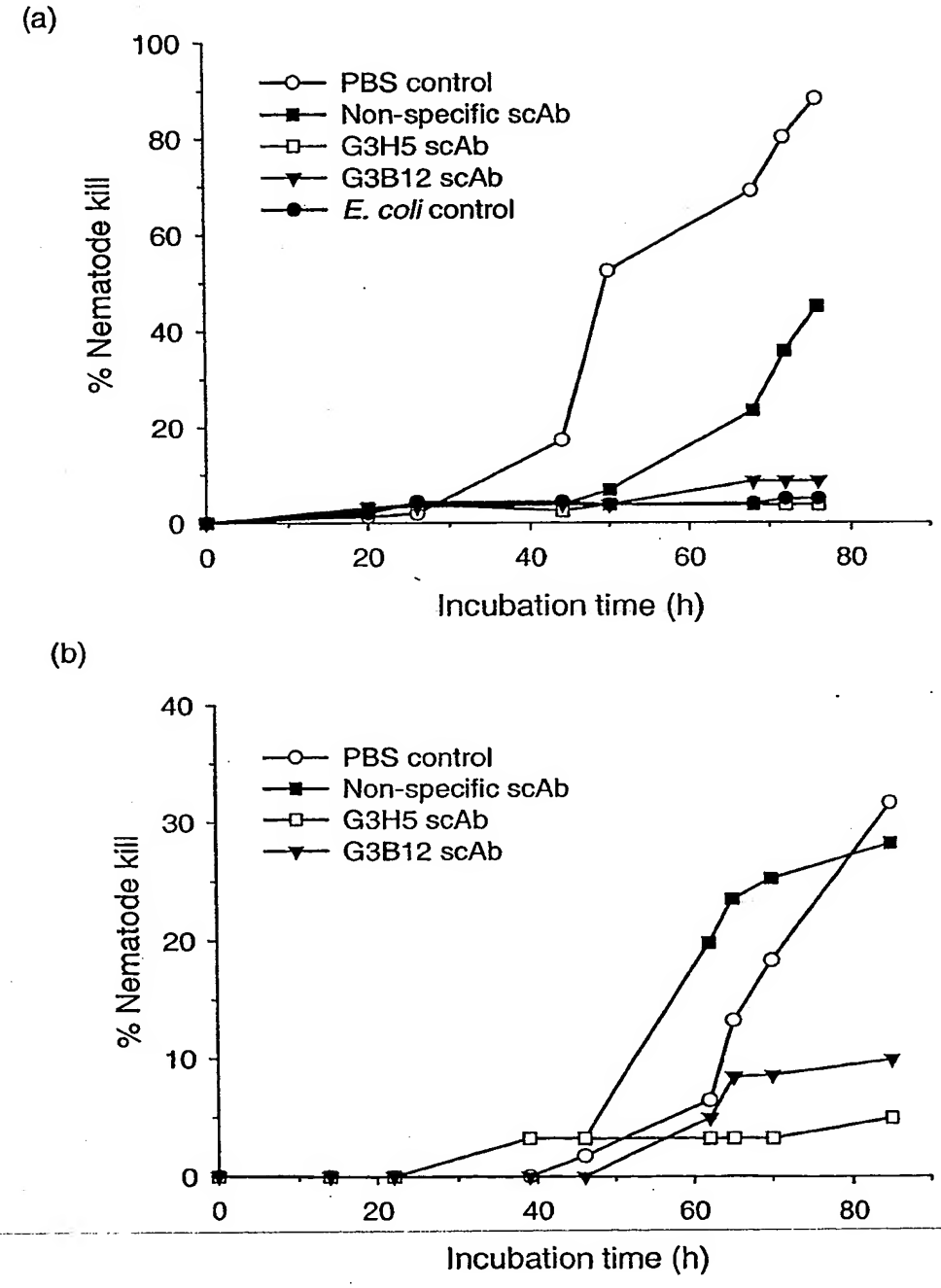
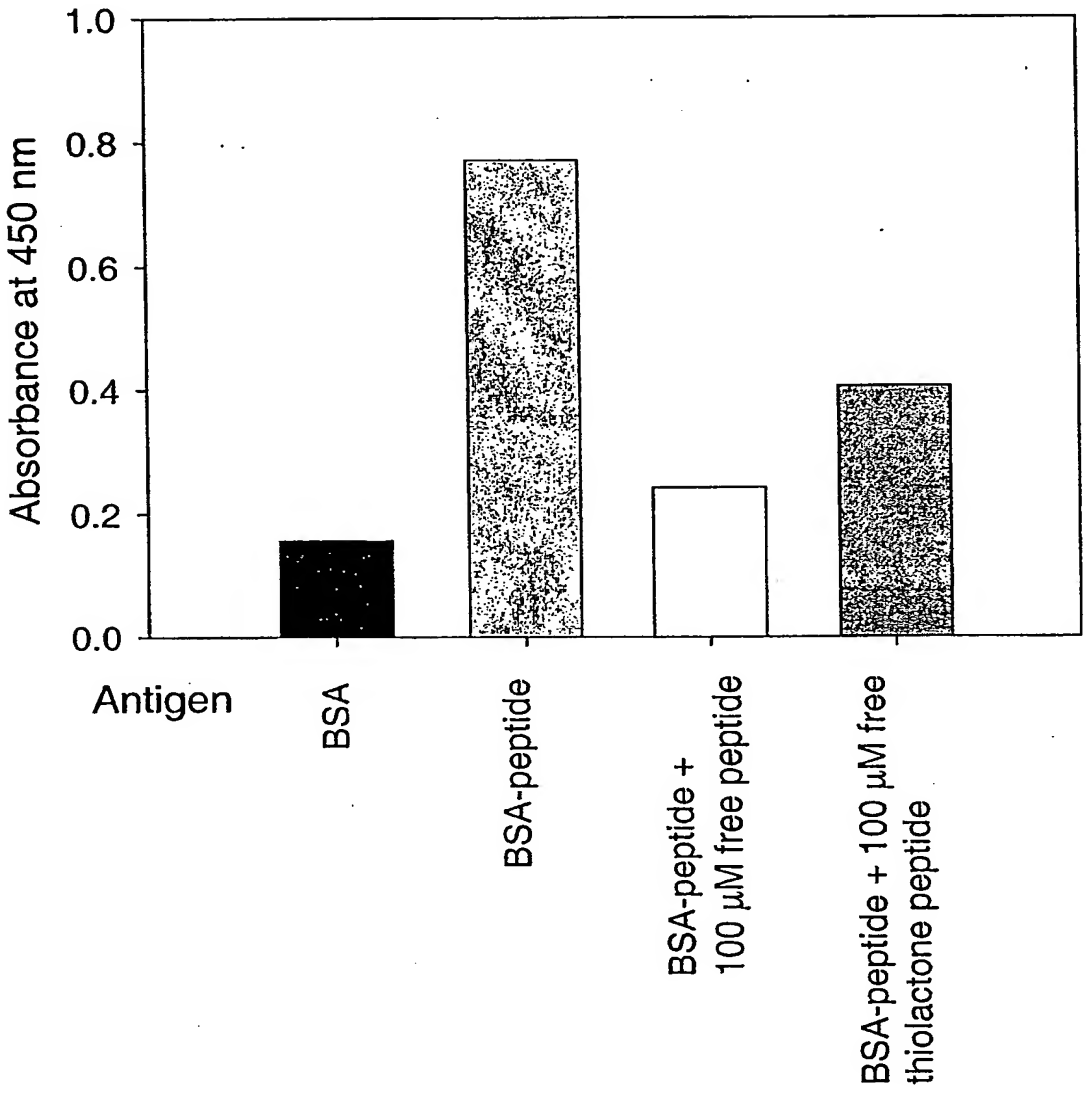

(a)
100
80
60
40
20
0
% Nematode kill
PBS control
Non-specific scAb
G3H5 scAb
G3B12 scAb
E. coli control
0
20
40
60
80
Incubation time (h)
(b)
40
30
20
10
0
% Nematode kill
PBS control
Non-specific scAb
G3H5 scAb
G3B12 scAb
0
20
40
60
80
Incubation time (h)

Table 5.

	High Optical density					Low density	
Inc Days	PBS Control	Control scAb	G3H5	G3B12	G3H3	PBS Control	3 scAb mixture
1	100	100	100	100	100	100	100
2	100	100	100	100	100	100	82
3	100	95	70	68	84	100	75
4	100	100	58	52	65	100	65
5	100	95	52	47	49	100	56

Figure 9.


1.0
0.8
0.6
0.4
0.2
0.0
Absorbance at 450 nm
Antigen
BSA
BSA-peptide
BSA-peptide + 100 µM free peptide
BSA-peptide + 100 µM free thiolactone peptide